DETAILED ACTION

1. This action is final. Claims 1-4 and 6-20 are rejected.

Response to Arguments

2. Applicant submitted a request for reconsideration on 10/7/11. Applicant contends that the amended claims are patentably distinct over US Patent 6,775,240 ("Zhang"). Examiner respectfully disagrees, and maintains that Zhang anticipates independent claims 1, 12, and 18.

Zhang recites at column 3, line 14: "[t]he test signal generator produces an appropriate test signal selected to measure aspects of the network path under test and transmits that signal on both the test channel and the reference channel." This test signal, or a portion of this signal, is thus an original signal stream that traverses both the test path and the reference path shown in figure 1 of Zhang. Zhang further recites at column 3, line 16: "appropriate test signals may include, in various combinations and sequences, periods of silence, band-limited white noise, impulse or step-function signals, and continuous, interrupted, or pulsed tones at various frequencies." A pulsed tone at a particular frequency is a pre-determined pattern that is substantially sinusoidal. Furthermore, a pulsed tone at a particular frequency, inherently, has a period that is the inverse of this frequency. The test receiver shown in figure 1 of Zhang receives two signals. Each of these signals includes the original signal stream produced by the test signal generator. Also, each of these signals includes the pulsed tone.

Applicant argues (1) that traces 410 and 420 do not include "an original signal stream." However, both signals that are received by the test receiver in figure 1 of Zhang include the test signal, or a portion of the test signal, originally generated by the test generator.

Applicant also argues (2) there is no teaching of the repeating pattern including a "single predetermined period." However, a predetermined period may be interpreted as any one or all of the items included in the test signal described at column 3, lines 16-20. A pulsed tone inherently has a predetermined period.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 7, 12-15, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al. (US Patent No. 6,775,240), hereinafter "Zhang".

Regarding claim 1, Zhang discloses a method comprising:

receiving in a signal processing subsystem **(See figure 1, items 110, 120, and 170)** a first signal **(See, e.g., figure 1. A signal traversing a reference path is received by the test receiver.)** including an original signal stream **(See, e.g., column 3, lines 13-14, "test signal". The original signal stream may be interpreted as the test signal or a portion thereof.)** and a predetermined pattern **(See, e.g., column 3, lines 16-20. Note "pulsed tones.")** the original signal stream being different from the predetermined pattern **(The original signal stream may be interpreted as the whole test signal, which is different than a pulsed tone included in the test signal. Also, the original signal stream may be interpreted as a portion of the test signal**

that doesn't include the pulsed tone.), the predetermined pattern is substantially sinusoidal and comprises a single predetermined period, the single predetermined period being an inverse of a single predetermined frequency of the predetermined pattern **(These are inherent characteristics of a pulsed tone.)**;

receiving in the signal processing subsystem a second signal including the original signal stream and the predetermined pattern, **(See, e.g., figure 1. A signal traversing a test path is received by the test receiver. Also note explanation set forth above in section 2.)**; and

determining by the signal processing subsystem a transmission latency between the received first signal and the received second signal based on the predetermined pattern **(See e.g. column 7, lines 50-65 regarding calculation of delay.)**.

Regarding claim 2, Zhang further discloses wherein the first signal is received from a first source and the second signal is received from a second source **(See figure 1. The test path includes source elements different from the reference path.)**.

Regarding claim 3, Zhang further discloses inserting the predetermined pattern in the first and second signals prior to receiving the first and second signals in the signal processing subsystem **(See, e.g., ¶ at column 3, line 13. Also note explanation set forth above in section 2.)**.

Regarding claim 4, Zhang further discloses recording the received first and second signals in a combination waveform; and determining the transmission latency between the received first and second signals from the combination waveform **(See, e.g., ¶ at column 6, line 50; also at column 7, line 27.)**.

Regarding claim 7, Zhang further discloses obtaining from the first signal a first pattern corresponding to the predetermined pattern; obtaining from the second signal a second pattern corresponding to the predetermined pattern **(See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different. Also note explanation set forth above in section 2.)**;

determining a first time-position corresponding to the obtained first pattern; determining a second time-position corresponding to the obtained second pattern; and determining a latency value between the first time-position and second time-position, the transmission latency comprising the determined latency value **(See e.g. ¶s at column 7, line 66, and column 8, line 46.)**.

Regarding claim 12, Zhang discloses a system being implemented within a computing device comprising:

a pattern insertion hardware subsystem to insert a predetermined pattern **(See, e.g., column 3, lines 16-20. Note "pulsed tones.")** into a first signal and a second signal **(See figure 1; note two signals traverse the reference and test path.)**, wherein the predetermined pattern is substantially sinusoidal and comprises a single predetermined period, the single period being an inverse of a single predetermined frequency of the predetermined pattern **(These are inherent characteristics of a pulsed tone.)**; and

a signal processing hardware subsystem to (i) receive the inserted first signal and the inserted second signal **(See, e.g., figure 1; note two signals are received by the test receiver.)** wherein both include an original signal stream and predetermined pattern **(See, e.g., column 3, lines 13-14, "test signal". The original signal stream may be interpreted as the test signal or a**

portion thereof.), and (ii) determine a transmission latency between the received signals based on the predetermined pattern **(See e.g. column 7, lines 50-65 regarding calculation of delay.)**.

Regarding claim 13, Zhang further discloses a filter subsystem to obtain a first pattern corresponding to the predetermined pattern from the inserted first signal and a second pattern corresponding to the predetermined pattern from the inserted second signal **(See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different. Also note explanation set forth above in section 2.)**;

a timer subsystem to determine a first time-position corresponding to the obtained first pattern, and a second time-position corresponding to the obtained second pattern; and a latency determination logic to determine a latency between the first time-position and second time-position wherein the transmission latency comprises the determined latency **(See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.)**.

Regarding claim 14, Zhang further discloses a recordation subsystem to record the received inserted first and second signals in a combination waveform **(See e.g. ¶ at column 6, line 50; also at column 7, line 27. Also see ¶ at column 5, line 34.)**.

Regarding claim 15, Zhang further discloses a first input to receive the inserted first signal; and a second input to receive the inserted second signal **(See figure 1, items 124 and 126. Also note.)**.

Regarding claim 18, Zhang discloses a non-transitory storage medium that provides software that, if executed by a signal processing subsystem, will cause the signal processing subsystem to perform the following operations:

receive a first signal **(See, e.g., figure 1. A signal traversing a reference path is received by the test receiver.)** comprising an original signal stream and a predetermined pattern **(See, e.g., column 3, lines 13-14, "test signal". The original signal stream may be interpreted as the test signal or a portion thereof.)** and a predetermined pattern **(See, e.g., column 3, lines 16-20. Note "pulsed tones.")**, the original signal stream being different from the predetermined pattern **(The original signal stream may be interpreted as the whole test signal, which is different than a pulsed tone included in the test signal. Also, the original signal stream may be interpreted as a portion of the test signal that doesn't include the pulsed tone.)**, wherein the predetermined pattern is substantially sinusoidal and comprises a single predetermined period, the single predetermined period being the inverse of a single predetermined frequency of the predetermined pattern **(These are inherent characteristics of a pulsed tone.)**;

receive a second signal comprising the original signal steam and the predetermined pattern **(See, e.g., figure 1. A signal traversing a test path is received by the test receiver. See explanation set forth above in section 2.)**; and

determine a transmission latency between the received first signal and the received second signal based on the predetermined pattern **(See e.g. column 7, lines 50-65 regarding calculation of delay.)**.

Regarding claim 19, Zhang further discloses inserting the predetermined pattern into the first and second signals prior to the receipt of the first and second signals in the signal processing subsystem **(See, e.g., ¶ at column 3, line 13. Also note explanation set forth above in section 2.)**.

Regarding claim 20, Zhang further discloses the following operations:

obtain from the first signal a first pattern corresponding to the predetermined pattern; obtain from the second signal a second pattern corresponding to the predetermined pattern **(See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different. Also note explanation set forth above in section 2.)**;

determine a first time-position corresponding to the obtained first pattern; determine a second time-position corresponding to the obtained second pattern and determine a latency between the first time-position and second time-position where in the transmission latency comprises the determined latency **(See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.)**.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US Patent No. 6,775,240), hereinafter "Zhang".

Regarding claim 6, Zhang substantially teaches the method as set forth above regarding claim 1, but does not explicitly state wherein the predetermined period is greater than a transmission latency period. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to foresee latency measurement results smaller than a predetermined period in order to account for low frequency tones or networks with very small latency.

8. Claims 8-11, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US 6,775,240), hereinafter "Zhang", in view of Liu et al. (US Publication No. 2006/0072628), hereinafter "Liu".

Regarding claim 8, Zhang substantially discloses the method as set forth above regarding claim 1, but does not explicitly state both a plurality of first and second signals each containing the predetermined pattern. However, Liu discusses burst delay or the delaying of multiple packets **(¶[20)**. It would have been obvious to one having ordinary skill in the art at the time of the invention to apply the system taught by Zhang to a plurality of packets in order to account for burst delay.

Regarding claim 9, the combination of Zhang and Liu further teaches obtaining a plurality of first patterns corresponding to the predetermined pattern in each of the plurality of first signals; obtaining a plurality of second patterns corresponding to the predetermined pattern in each of the plurality of second signals; determining a plurality of first time-positions, wherein each first time-position in the plurality of first time-positions corresponding to an obtained first pattern **(See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different. Also note explanation set forth above in section 2.);**

determining a plurality of second time-positions, wherein each second time-position in the plurality of second time-positions corresponding to an obtained second pattern; and determining a plurality of latency values between the first time-positions and the second time-positions, wherein each latency value in the plurality of latency values corresponds to a latency between a first time-position and a corresponding second time-position; determining an average latency value from the

plurality of latency values, the transmission latency comprising the determined average latency value **(See Zhang, e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.)**.

Regarding claim 10, the combination of Zhang and Liu further teaches inserting the predetermined pattern in a plurality of first and second signals prior to receiving the plurality of first and second signals in the signal processing subsystem **(See Zhang, e.g. ¶ at column 6, line 30.)**.

Regarding claim 11, the combination of Zhang and Liu further teaches recording the received plurality of first and second signals in a combination waveform; and determining the transmission latency between the received first and second signals from the combination waveform **(See Zhang, e.g. ¶ at column 6, line 50; also at column 7, line 27.)**.

Regarding claim 16, Zhang substantially discloses the method as set forth in 1 above. Zhang does not explicitly state both a plurality of first and second signals each containing the predetermined pattern. However, Liu discusses burst delay or the delaying of multiple packets **(¶20)**. It would have been obvious to one having ordinary skill in the art at the time of the invention to apply the system taught by Zhang to a plurality of packets in order to account for burst delay.

The combination of Zhang and Liu teaches wherein the signal processing subsystem is to receive a plurality of first signals each comprising a predetermined pattern, and a plurality of second signals each comprising the predetermined pattern, the filter subsystem is to obtain a plurality of first patterns corresponding to the predetermined pattern in each of the plurality of first signals,

and to obtain a plurality of second patterns corresponding to the predetermined pattern in each of the plurality of second signals **(See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different.)**,

the timer subsystem is to determine a plurality of first time-positions, wherein each first time-position in the plurality of first time-positions corresponding to an obtained first pattern, and to determine a plurality of second time-positions, wherein each second time-position in the plurality of second time-positions corresponding to an obtained second pattern, and the latency determination logic is to determine a plurality of latencies between the first time-positions and the second time-positions, wherein each latency in the plurality of latencies corresponds to a latency between a first time-position and a corresponding second time-position, and to determine an average latency value from the plurality of latencies, the transmission latency comprising the determined average latency **(See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.)**.

Regarding claim 17, the combination of Zhang and Liu further teaches wherein the first signal is received from an audio source and the second signal is received from an audio sink **(See Zhang, e.g. abstract, "audio paths".)**.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

/N. S./

Examiner, Art Unit 2476

/Ayaz R. Sheikh/

Supervisory Patent Examiner, Art Unit 2476